

## REPORT

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| COUNTRY              | USER |
|----------------------|------|
| USA                  | 100  |
| USSR                 | 100  |
| FRANCE               | 100  |
| GERMANY              | 100  |
| ITALY                | 100  |
| JAPAN                | 100  |
| SOUTH AFRICA         | 100  |
| SPAIN                | 100  |
| UNITED KINGDOM       | 100  |
| Australia            | 100  |
| Brazil               | 100  |
| Canada               | 100  |
| China                | 100  |
| Dominican Republic   | 100  |
| Egypt                | 100  |
| Greece               | 100  |
| Hong Kong            | 100  |
| India                | 100  |
| Indonesia            | 100  |
| Ireland              | 100  |
| Israel               | 100  |
| Italy                | 100  |
| Korea                | 100  |
| Malaysia             | 100  |
| Mexico               | 100  |
| Netherlands          | 100  |
| New Zealand          | 100  |
| Norway               | 100  |
| Pakistan             | 100  |
| Peru                 | 100  |
| Philippines          | 100  |
| Poland               | 100  |
| Portugal             | 100  |
| Romania              | 100  |
| Saudi Arabia         | 100  |
| South Africa         | 100  |
| Spain                | 100  |
| Sweden               | 100  |
| Switzerland          | 100  |
| Taiwan               | 100  |
| Thailand             | 100  |
| Turkey               | 100  |
| Uganda               | 100  |
| United Arab Emirates | 100  |
| United Kingdom       | 100  |
| United States        | 100  |
| Vietnam              | 100  |
| Zimbabwe             | 100  |

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**[BOMBARDIER]**

## RAISING THE TECHNICAL STANDARDS FOR LOADING RAILROAD CARS WITH FUEL FREIGHT

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Underloading of freight cars is causing a total transport-capacity loss of not less than 30,000 tons every 24 hours. More than 30 percent of this loss can be laid to underloading of fuel freight carriers.

In the first half of 1947, every sixth car hauling coal was one ton under capacity. Every third wood car was 2.2 tons underloaded. Peat cars were averaging less than half capacity. Only 9.78 tons of peat were loaded in a car, while the mean load for freight in the national economy was almost 18 tons.

In conjunction with the All-Union Scientific Research Institute of Railway Transport, the Main Administration of Freight and Commercial Operations of the Ministry of Transportation is currently preparing proposals for revising the 1941 loading standards on the basis of new achievements by loading workers in freight storage, and the improved technical level in transport and industrial enterprises. The adoption of these revisions (Ministry of Transportation Order No 698/Ts) would guarantee an increase of 1.6 million tons in annual coal hauling without the use of additional rolling stock.

### Coal Loading

According to a selective check made by the Central Accounting Section, Ministry of Transportation, car capacity in coal hauling is being utilized as follows: covered cars, 90 percent; hopper cars, 98 percent; half-cars and gondolas, 99 percent; two-axle flatcars, 93 percent; and four-axle flatcars, 54 percent.

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Experimental work by Donbass Stakhanovite weighers has shown that four-axle flatcar loading can be raised 6-10 tons above the present technical standard.

Between June and September, test loading and hauling operations were conducted on eight railroads. A total of 1,049 cars were loaded during the test period.

Most of the test loading was done mechanically from bunkers, and hand-leveled with shovels. Coal was put on in three layers: the first, up to the level of the edges, the second, 160-180 millimeters above the edges, with setback, and the third, in a conically shaped heap in the center, rising 500-600 millimeters above the edges, depending on the normal slope angle of a given type of coal. Experience showed that two-axle cars would hold capacity loads of hard coal (with the exception of the B0-type from Far East deposits), and that heavy flatcars designed for 50-60 tons had been technically underrated.

The cone loadings of 500-600 millimeters proved to be stable over the test runs.

The commission which carried out the test hauls on the Moscow-Donbass Railroad recommended a loading height of 550-600 millimeters for Moscow basin coal, which is about the same as that used on the South Donets Railroad. Conical loading to such height makes possible an increase in the technical loading standard for four-axle flatcars from 24 tons to as much as 33 tons, depending on the type of coal to be loaded.

A considerable increase in flatcar load was obtained by increasing the height of the sides. Of 395 flatcars loaded on the South Donets Railroad, the edges of 42 four-axle flatcars were raised from 350 to 450 millimeters thus raising their loads 20 tons as compared with the norms presently in force.

New standards, it was proposed, should be drawn up based on test loading data from ordinary rolling stock in good condition, without taking into consideration the heightening of the sides of four-axle flatcars.

The height increase recommendations were to be drawn up by the Main Administration of Railroad Car Management and the Central Scientific Research Institute of Railway Transport to be completed in 2 months.

The new technical standards for loading of rolling stock, confirmed in Ministry of Transportation Order No 693/Ts of 3 November 1947, are shown in the following table:

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| Class of Freight          | Carrying Capacity of Car (Tons) |      |      |      |      |      |      |
|---------------------------|---------------------------------|------|------|------|------|------|------|
|                           | 16.5                            | 18.0 | 20.0 | 25.0 | 40.0 | 50.0 | 60.0 |
| <u>All Types of Coal</u>  |                                 |      |      |      |      |      |      |
| In covered cars           | 16.5                            | 18.0 | 20.0 | --   | 42.0 | 52.0 | --   |
| In half cars and gondolas | 16.5                            | 18.0 | 20.0 | --   | --   | 50.5 | 60.5 |
| In hopper cars            | --                              | --   | --   | 25.5 | --   | 50.0 | --   |
| On flatcars:              |                                 |      |      |      |      |      |      |
| <u>Donbass Coals</u>      |                                 |      |      |      |      |      |      |
| AS and AZh                | 16.5                            | 18.0 | 19.0 | --   | --   | 25.0 | 25.0 |
| G and K                   | 16.5                            | 18.0 | 20.0 | --   | --   | 25.0 | 25.0 |
| D, PZh, PS, AK            | 16.5                            | 18.0 | 20.0 | --   | --   | 26.0 | 26.0 |
| TS, T and ASSh            | 16.5                            | 18.0 | 20.0 | --   | --   | 27.0 | 27.0 |
| ASh, AP, ASM, AMSH        | 16.5                            | 18.0 | 20.0 | --   | --   | 30.0 | 30.0 |
| ARSh                      | 16.5                            | 18.0 | 20.0 | --   | --   | 33.0 | 33.0 |
| Others                    | 16.5                            | 18.0 | 20.0 | --   | --   | 24.0 | 24.0 |
| <u>Kuzbass Coals</u>      |                                 |      |      |      |      |      |      |
| G                         | 16.5                            | 18.0 | 20.0 | --   | --   | 25.0 | 25.0 |
| PS                        | 16.5                            | 18.0 | 20.0 | --   | --   | 28.0 | 28.0 |
| K-1, K-2, and S3 "ener"   | 16.5                            | 18.0 | 20.0 | --   | --   | 27.0 | 27.0 |
| K                         | 16.5                            | 18.0 | 20.0 | --   | --   | 29.0 | 29.0 |
| <u>Moscow Coals</u>       |                                 |      |      |      |      |      |      |
| BR and BM                 | 16.5                            | 18.0 | 20.0 | --   | --   | 27.0 | 27.0 |
| BO and BK                 | 16.5                            | 18.0 | 20.0 | --   | --   | 26.0 | 26.0 |
| <u>Pechora</u>            |                                 |      |      |      |      |      |      |
| Vorkuta and Ishtakiy      | 16.5                            | 18.0 | 20.0 | --   | --   | 29.0 | 29.0 |
| <u>Karaganda</u>          |                                 |      |      |      |      |      |      |
| Large lumps               | 16.5                            | 18.0 | 20.0 | --   | --   | 26.0 | 26.0 |
| Small lumps               | 16.5                            | 18.0 | 20.0 | --   | --   | 28.0 | 28.0 |
| Coals from other fields   | 16.5                            | 18.0 | 20.0 | --   | --   | 26.0 | 26.0 |
| <u>Coke</u>               |                                 |      |      |      |      |      |      |
| In covered cars           | 16.5                            | 18.0 | 20.0 | --   | 33.0 | 34.0 | --   |
| In half cars and gondolas | 16.0                            | 16.0 | 20.0 | --   | --   | 32.0 | 41.0 |
| On flatcars               | 13.0                            | 13.0 | 13.5 | --   | --   | --   | --   |
| <u>Coke Fines</u>         |                                 |      |      |      |      |      |      |
| In covered cars           | 16.5                            | 18.0 | 20.0 | --   | 40.0 | 50.0 | --   |
| In half cars              | 16.0                            | 16.0 | 20.0 | --   | --   | --   | --   |
| On flatcars               | 15.0                            | 16.0 | 17.0 | --   | --   | --   | --   |

NOTES: 1. If flatcars have brake platforms, subtract one ton from standard on four-axle cars and 750 kilograms from standard on two-axle cars for correct loading norm.

2. Loading standard for Western-European type cars is established at 2.5 tons more than that shown on the channel beam.

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3. Flatcars and half-cars (gondolas) shall be loaded conically above the level of the edges.

4. Loading four-axle hoppers above the tie beams of the body of the car is prohibited due to the instability of this type of rolling stock when in motion.

It should be remembered that there is room for considerable raising of the standards for flatcars, particularly four-axle cars, by increasing the height of their edges to 650 millimeters, which is the height of sides on a high-sided two-axle flatcar.

Only a 200-millimeter increase in side height gives an added 7 tons of coal per flatcar, or about 1.4 million tons per year over the present standard for the same rolling stock.

#### Peat Loading

The large deposits, wide distribution and easy extraction of peat make it the major local fuel used in the USSR. Peat transport for supplying the fuel requirements of electric power plants and industrial plants is more or less constant throughout the year, and is generally over short hauls (60-70 kilometers). While this should facilitate peat hauling on regular-run trains equipped with special peat cars, the organization of such trains and utilization of loading capacity is entirely unsatisfactory, particularly with respect to flatcars.

The following measures to correct this situation should be introduced:

The sides of 15-ton half cars should be raised to 2.6 - 2.8 meters, bringing the volume of the body up to 50-55 cubic meters. Experimental loading with sides 2.6 meters high brought the load up to maximum capacity for the car.

Slat sides should be put on two-axle flatcars of the 16.5-18 ton types, bringing the load volume up to 50-55 cubic meters. The slat sides should be arranged to open at the bottom on both sides to permit unloading in 15-20 minutes.

The prewar practice of transporting peat in boxes should be resumed, and unloading and loading points having box service should be properly equipped for handling the containers.

The use of flatcars without slat sides and that of four-axle flatcars should be prohibited.

Weighing platforms should have enough peat on hand to make up for underweight shipments and facilities for unloading any surplus discovered in the weighing.

#### Wood Fuel Loading

Loading practice in wood transport must be improved. In closed cars there has been found to be 70 centimeters of empty space at the ends of the cars. Side props on flatcars carrying 2-meter logs are not more than 1.3 or 1.4 meters high, while the permissible height is 2.9 meters. There is inexcusable underloading of wood for this reason. The Main Administration of Freight and Commercial Operations and the Central Scientific Research Institute of the Ministry of Transportation are now at work raising the technical norms for wood loading.

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